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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/747,933

12/29/2003

Kwang Ryong Oh

5882P071

7073

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05/04/2006

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EXAMINER

CHIEM, DINH D

ART UNIT

PAPER NUMBER

2883

DATE MAILED: 05/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/747,933

Applicant(s)

OH ET AL.

Examiner

Erin D. Chien

Art Unit

2883

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 13 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 February 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau. (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

This office action is in response to the amendment filed on February 13, 2006. Currently, independent claims 1, 8, and 15 have been amended.

#### *Drawings*

The drawings were received on February 13, 2006. These drawings are accepted. However, the requested drawings to show the limitations of claims 3 and 10 have not been submitted. The examiner considers the shape of the deflector is critical to directional change of the optical signal; therefore, applicant must submit drawings to clearly show how a trapezoidal deflector would influence the direction of the optical signal. No new matter should be entered and the corrected drawing sheets must be in compliance with 37 CFR 1.121(d) as explained in the prior office action.

#### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato et al. (US 6,504,966 B2, "Kato" hereinafter) in view of Deliwala (US 6,912,330, "Deliwala" hereinafter).

Regarding claims 1 and 8, Kato discloses an optical deflecting element comprising a passive optical waveguide (103b) having a lower cladding layer, a core, and an upper cladding layer to guide and transmit optical signals; and a light deflector formed by patterning the upper cladding layer in a predetermined shape (103c), the light deflector located at an end portion of the core. Since applicant has not indicated a reference *end* of the waveguide, the examiner considers the portion of the slab waveguide closest to the input collimator (102) as the end portion of the core. Furthermore, the refractive index of the core under the predetermined shape is modified to change a propagation direction of a light beam guided to through the core to the light deflector by the passive optical waveguide by applying a current or an electrical field to a particular portion of the light deflector having the predetermined shape, and the light deflector and the laser diode made of a material. See Fig. 5A for the propagation of light due the influence of the current applied to light deflector.

Regarding claims 2 and 9, col. 11, lines 20-34 explains the operation of the deflected angle when the current is applied such that the emergent light beam is different from that of an incident light beam.

Regarding claims 3 and 10, the light deflector shape is a triangle (103c).

Regarding claims 4 and 11, Fig. 3, shows how the deflectors are arranged in an array of the same prismatic shapes along the length of the slab waveguide and the incident angles upon each deflector is dependent on the activation of the current through each deflector.

Claims 7 and 14 is recited in the product-by-process format and the MPEP § 2113 states that the process recitation does not dictate the patentability of the product. Thus, the examiner did not give patentable weight to the process limitation.

However, Kato does not disclose an integrated laser diode wherein the deflector and the laser diode are made of the same material wherein passive waveguide claddings are composed of InP material and the core is composed of GaAs material.

Deliwala discloses in Fig. 13, 25A, 26, and 29, for example, the integrated deflector (1304, 1306, 2502) and laser diode (100). Table 1 in column 20 shows benefits (e.g., propagation constant) of InP/GaAs material used as waveguide over silicon that is capable of energizing to produce a high intensity optical signal. Furthermore, in Fig. 23, Deliwala discloses forming diffraction gratings on a raised waveguide portion such that the signals are selected at a predetermined wavelength to incident upon the selected deflector/device (col. 30, lines 19-26). Moreover, Fig. 44 is an embodiment of a resonator wherein the input mirror gates (4402) and output mirror gates (4404) and when the power source (4408) is actuated, the device acts as a resonating cavity analogous to thin film type of resonating cavity.

Since Kato and Deliwala are both from the same field of endeavor, the purpose disclosed by Deliwala would have been recognized in the pertinent art of Kato.

**The motivation** for integrating opto-electronics (e.g., a laser source having guiding structures that are directionally modified by electrodes) is to increase device speed (light can travel between locations separated by great distance faster than electricity) and increase device density and integration of opto-electronics greatly reduce the device size (col. 1, lines 22-50). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to recognize waveguides can be made of semiconductor materials such as InP/GaAs that are typically used for making laser.

*Response to Arguments*

Applicant's arguments with respect to claims 1, 8, and 15 have been considered but are moot in view of the new ground(s) of rejection.

*Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin D. Chiem whose telephone number is (571) 272-3102. The examiner can normally be reached on Monday - Thursday 9AM - 5PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Erin D Chiem  
Examiner  
Art Unit 2883



Frank G. Font  
Supervisory Primary Examiner  
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